

CLAIMS

1. Method for characterising an optical fibre link by its beat length, coupling length and polarisation mode dispersion distribution, comprising the
5 steps of

- sending a pulsed signal along said optical fibre link and measuring the backscattered signal, after passing through a polariser,
- deriving the length of said optical fibre, the average
10 power difference between two successive minima of said backscattered signal and the number of maxima per unit length,
- in an iterative way determining a beat length interval and an interval for the polarisation mode coupling
15 parameter, until the length of said intervals is below a predetermined value, yielding a value for the beat length and the coupling length,
- calculating the polarisation mode dispersion.

2. The method as in claim 1, wherein said
20 backscattered signal is a POTDR signal.

3. The method as in claim 2, wherein said POTDR signal is an ideal POTDR signal.

4. The method as in claim 2, wherein said POTDR signal is the convolution of an ideal POTDR signal
25 and a signal depending on the pulse shape.

5. The method as in claim 4, wherein said POTDR signal further is convoluted with a signal taking into account the effect of time jitter.

6. The method as in any of claims 2 to 5,
30 wherein a smoothing algorithm is applied to said POTDR signal.

7. Method for characterising an optical link consisting of a concatenation of several fibres, by

applying the method as in any of the previous claims to each fibre.

8. Use of method as in any of the previous claims to locate the position of polarisation mode
5 dispersion sources within an optical fibre link.

9. Use of method as in any of the claims 1 to 8 in telecommunication networks.

10. Use of method as in any of the claims 1 to 8 in fibre sensing applications.